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cess before its conversion, by means of machinery, into sheets of from six to seven feet in length, and of about forty inches in width. It may be moulded into any required shape, and is peculiarly adapted for mouldings, cornices, &c.

This material is only about one-sixth of the weight of the composition ordinarily used, and less than half the weight of *papier mâché*. The composition ordinarily used requires a long time before it is ready to receive paint and gilding, and, if hurried by artificial heat, will crack to a very considerable extent. The least blow will cause fractures in it, whereas the new material is exceedingly tough, and may be thrown on the ground without receiving injury.

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No. XVIII.

MARTIN'S CHIROGYMNAST.

February 14, 1844.

GEORGE MOORE, ESQ. F.R.S. V.P. IN THE CHAIR.

MR. MARTIN explained the chirogymnast, or finger-exerciser, the object of which is to facilitate the action of the fingers, by exercising them in modes corresponding with those required in the art of music, so as to give them more independence and equality of movement, and to obtain, at the same time, by a series of exercises, that which may be called a "distinct individuality" for each finger, together with increased agility, extension, and force.

The chirogymnast is applicable to nine different gymnastic exercises, which are intended to prepare the hand

for the practice of all kinds of musical instruments, but particularly of the pianoforte. The mechanical arrangements for governing the exercises are attached to a piece of mahogany or other wood, which is nineteen inches long, by twelve and a half wide, and one inch in thickness, and which is fitted with various levers, springs, straps, keys, &c., in such a way as to render it easy of adjustment to a hand of any size, and to constrain the hand to follow the action required in musical practice, attention being particularly directed to the fourth finger, which is the least susceptible of free and independent motion.\* As the whole of the apparatus does not weigh more than six pounds, it is very portable; and from its nature it is noiseless, so that the exercises may be practised without interruption to persons situated in the same or adjoining apartments.

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No. XIX.

DR. ROTH'S CALCULATING MACHINE.

By MR. WERTHEIMBER.

THE automaton calculator, invented by Dr. Roth of Paris, and laid before the Society by Mr. Wertheimber, is an instrument by which various sums, either simple or compound, may be rapidly and accurately added together, provided the whole amount does not exceed 999,999, or 999,999*l.* 19*s.* 11*½d.*

The instrument consists of an oblong mahogany box, fifteen and a half inches long, and two and a half inches wide, and one inch thick, having a metal plate at top, in which are nine semiannular perforations, beneath which